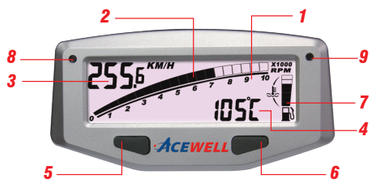
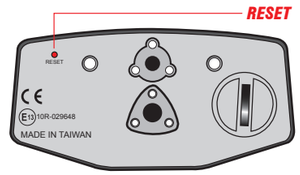
ACEWELL® ATV/Motorcycle Computer

ACE-1600 User Manual

Thanks for bought the ATV/Motorcycle computer, please read the manual before you install the computer.





English

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PANEL DESCRIPTIONS

1. Tachometer Scale
2. Bar Tachometer
3. 1st row: Current & Max. Speedometer
4. 2nd row: Other functions
5. RESET Button
6. MODE Button
7. Bar Thermometer /Fuel Gauge
8. RPM Warning Indicator
9. Temperature /Fuel Gauge Warning LED

FEATURES

- Displays bar-graphic tachometers, speedometer, bar-graphic fuel gauge/temperature meter plus one additional function at the same time.
- Includes 50 lap timers and a wiring remote control switch .
- Powered using either the internal CR2032 battery or the bike's battery.
- Bar-graph tachometers with selectable 10,000rpm or 20,000rpm redline.
- Allows end user to adjust odometer when the odometer is less than 30km / 18.6 miles..
- Fuel gauge includes +/- 100, 250 and 510 Ohm options for fuel sender input resistance, as well as "fuel gauge off" mode.
- Includes bracket, RPM sensing wire, speed sensor, thermo sensor , fitting kits, wiring harness and wiring remote control switch.

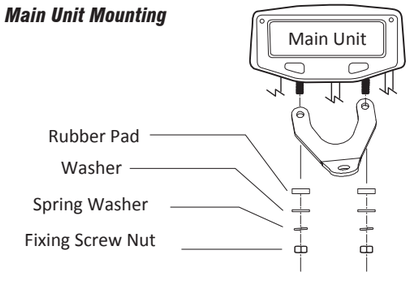
SPECIFICATIONS

Function	Simbolo	Specifications
Bar Tachomete		500-10,000 rpm 1,000-20,000rpm options
Speedometer	km/H/MPH	100-19,900 rpm,
Trip meter	Trip	2.4-399.9 km/h (248.5 MPH)
Odometer	ODO	2.4-399.9 KM/h (248.5 MPH),
Digital Tachometer	rpm	2.4-399.9 KM/h (248.5 MPH),
Digital Thermometer	°C or °F	+50℃-180℃/ 122℉-356℉
12/24 Hour Clock		+50℃-180℃ / 122℉-356℉
Average speed	AVG	0.0-999.9 KM/Miles
Riding Time	RT	0.0 - 999999 KM, 0.0-624999 Miles
Hour meter	RT	0:00' – 11H59'/23H59'
Voltage Gauge	V	0-9999H59`
Maximum speed	MAX	0-99H59`59``
Maximum Thermometer	MAX℃/℉	0-999999H
Total Hour Meter	TT	8.0-25.0 Volt
Bar-Fuel Meter or Bar Temperature Meter		100Ω, 250Ω, 500Ω options or 1-7 Bar-graphic
LAP timer	LAP	99 laps

Power Input	DC 9-18V or Internal 3VDC
Tachometer Sensor	CDI or Ignition Coil Signal
Speed Sensor	Reed Sensor (Internal or Bike's power) or Hall sensor (Bike's power application) only
Temperature Sensor	Thermo Sensor
Wheel circumference setting	1mm-3999mm
Power Consumption	50uA at clock mode 1mA at on status without backlight and all sensors off 2mA at all sensors on status without backlight 15mA at on status with 3 sec. backlight 25mA at on status with continue backlight
Dimensions	110.0mm x 55.0mm x 21.5 mm)

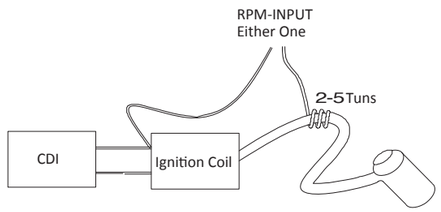
INSTALLATION & PARTS

Main Unit Mounting



RPM sensing wiring Mounting

1. Signal intensity from ignition coil is dependent on vehicle type.
2. Circles 2-5 turns around spark plug lead – more turns creates a steadily stronger signal, fewer turns creates a weaker signal.
3. The RPM circuit is designed for most bikes, however some bikes show a much higher and less stable RPM than they should. In this case the signal is too strong and the included 1M Ohm resistor should be installed inline in the yellow RPM sensor cable.

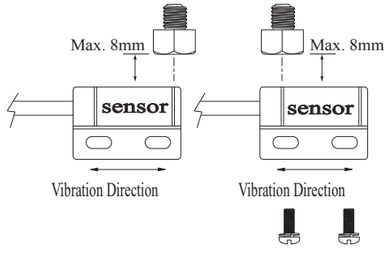


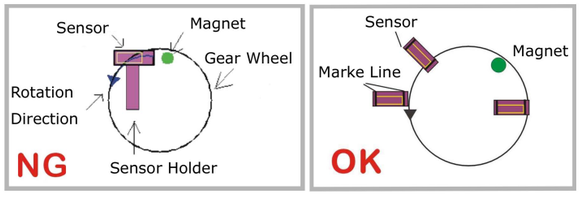
Speed Sensor Mounting:

ACEWELL has several speed sensors; the unit may include one of them. If the model is intended to be connected to a gearbox electronic speed output to obtain the speed reading, no speed sensor will be included.

Reed Speed Sensor and Magnet:

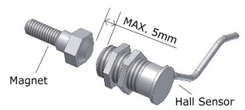
1. This sensor is universal sensor for motorcycle, find a rotating part to install magnet (for example disk, sprocket or driveshaft) and a location to install the sensor where it can be aligned to the magnet.
2. Align the center of the magnet to either of the sensor marking lines or the side of the sensor. The magnet must not travel down the body of the sensor
3. Installing the sensor parallel to the vibration direction creates optional anti-vibration effect.
4. Make sure the gap between the magnet and the sensor is within 8mm.





Hall Effective Speed Sensor and Magnet:

1. This is universal sensor for ATV front or rear wheel installation or motorcycle front wheel installation. For some fitments an accessory speed sensor holder may need to be purchased.
2. Find a rotating part to install magnet (for example disk, sprocket or driveshaft) and a location to install the sensor where it can be aligned to the magnet
3. Align the center of the magnet to center of side face of the sensor.
4. Make sure the gap between the magnet and the sensor is within 5mm.



Specific Hall sensors:

Cable drive adaptors for most bikes originally fitted with cable driven speedometers or milemeters are available. When using these cables it is necessary to divide the circumference setting by the number of rotations of the cable per rotation of the wheel.

Thermo Sensor and Sensor Tube:

1. The unit includes a water temperature sensor; you have to purchase a suitable water pipe temperature sensor tube to install the sensor easily.
2. Cut the water pipe, insert the temperature tube into the pipe and secure it by attached pipe clamps.
3. Screw the sensor into the tube.
4. If your vehicle is fitted with a thermostat that stops water flowing to the radiator when the engine is cold, you will not get a reading until the thermostat opens

Wire connected Remote Control Switch Installation:

1. Install the switch arm on handlebar.
2. Install the switch box to one of 3 fixing holes and adjust switch box to a suitable angle.
3. Plug the switch box connector into the main unit matching connector.

FUNCTIONS

BAR RPM: Bar Graphic Tachometer

The bar tachometer has 10,000rpm and 20,000rpm options.

RPM: Digital Tachometer

1. It displays digital tachometer up to 19,900RPM and displays 19,999rpm when tachometer is over 20,000rpm..
2. Tachometer signal can pick up from either CDI or Spark plug lead.

Shift Warning RPM

1. The function enables you to set up a shift warning RPM.
2. Shift warning LED indicator flashes when RPM reaches preset value, and stops flashing after you shift gear.

MAX RPM: Maximum Tachometer

Displays highest tachometer reading achieved since last Reset operation.

Km/H or MPH: Speedometer

Displays speed meter up to 399.9 Km/H or 248.5 MPH.

MAX: Maximum Speed Meter

Displays highest speed achieved since last Reset operation.

AVG: Average Speed Meter

It calculates average speed since last RESET. The AVG is calculated from TRIP be divided by RT.

TRIP: Trip Meter

TRIP function accumulates trip distance since last RESET as long as bike/vehicle is in motion.

ODO: Odometer

1. ODO accumulates total accumulated distance traveled during bike moving.
2. ODO data is adjustable when it is less than 30km (18.6 Miles), after that it stored in memory and cannot be reset.

RT: Riding Timer

1. Calculates total running time since last RESET.
2. Count automatically begins with movement.

RT: Hour Meter

1. Calculates total engine operation time since last RESET.
2. Count automatically begins with engine starting.

TT: Total Hour Meter

1. Calculates total engine operation time from when the speedometer was installed.
2. TT data is stored in memory, and cannot be reset.

: 12/24 hour Clock

Displays 12 or 24 hour current time.

℃ / ℉: Digital Thermometer

1. It displays -L-℃ or -L-℉ when temperature is lower than 50 ℃ or 122℉ , and displays -H-℃ or –H-℉ when temperature is over 180℃ or 356℉ .
2. The LCD screen will automatically change to temperature screen and flash the digits of the temperature when the thermo sensor detects temperature over the preset warning temperature.

MAX ℃/ ℉: Maximum Thermometer

Displays highest temperature achieved since last Reset operation.

Volt: Digital Voltage Gauge

It checks bike's battery and charging systems health.

or Bar: Fuel Gauge or Thermometer

1. The 7 bars can display either fuel gauge or thermometer as your option.
2. Press MODE button to go to digital thermometer screen, press RESET at the screen to convert the bar functions of thermometer or fuel meter.

: Fuel Gauge

1. Has 7 bars to indicate how much fuel remains.
2. Built-in 100, 250, 510Ohm, oFF, -100, -250 and -510 Ohm fuel sender resistance, the fuel bars will disappear when you select "oFF" mode.
3. The full bars are low resistance and empty bar is high resistance for 100, 250 and 510ohm; -100, -250 and -510 ohm are the inverse.
4. Last bar flashes to indicate low fuel level automatically.

Bars	100Ω	250Ω	510Ω	-100Ω	-250Ω	-510Ω
7	0-10	0-25	0-50	100-90	250-230	510-460
6	11-20	26-50	51-100	89-75	229-200	459-380
5	21-35	51-85	101-180	74-60	199-150	379-300
4	36-45	86-110	181-230	59-45	149-110	299-230
3	46-60	111-150	231-300	44-35	109-85	229-180
2	61-75	151-200	301-380	34-20	84-50	179-100
1	76-90	201-230	381-460	19-10	49-25	99-50
0-Flash	91-100	231-250	461-510	9-0	24-0	49-0

: Bar Thermometers

1. There are 7 bars to indicate engine temperature. Each bar represents a 15℃ change in temperature.
2. The over temperature LED lights and the display starts to flash at the preset warning temperature.
3. The scale is adjusted by the computer so that when the scale shows 1 to 5 bars, the engine is in permitted operating temperature and when the 6th bar lights the warning temperature has been reached.

LAP: Lap Timer

1. It can keep up to 99Laps
2. The function has to be operated by an additional cable connected remote control switch.

AUTO Power Off

1. The power will be turned off automatically after 3 minutes the unit does not receive any signal from speed, RPM or button operation in case it is using the internal battery CR2032.
2. The riding data will be kept in memory at each power off before the low battery icon appears.
3. The power is always turned on at LAP mode until go out the LAP mode.

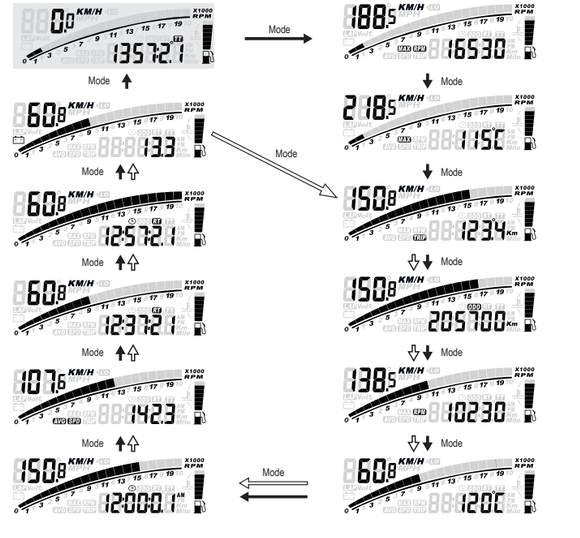
LO: Low Battery Indicator

1. The " LO " icon flashes when the CR-2032 battery is at low power status to reminder you change the battery.
2. All setting is kept in memory not mater the power is connected to bike's 12VDC battery or using internal CR2032 battery only; In case the power is only the internal CR2032 battery, riding data can be kept in memory when the first time The " LO " icon appears then the unit display riding data but does not keep riding data in memory to avoid setting data be reset at low voltage.
3. Remove the old battery. Replace with a new CR2032 with the positive (+) pole towards the battery cap.
4. Be sure to press RESET button at the rear side after installed the battery to sure all functions work smoothly.

BUTTON OPERATIONS

MODE BUTTON

1. Press the MODE button to move between all functions in loop sequence as " ➔ " path from one function screen to another when the speed sensor does not detect any signal input..
2. Press the MODE button to move partial functions in loop sequence as " ⇨ " path when speed sensor detects signal input.



RESET BUTTON

1. Press MODE button to get to the desired screen then press RESET button for 2 seconds to reset hour meter, MAX SPD, MAX thermometer* and MAX RPM data from stored values to zero individually.
2. The data of Trip, AVG & RT can be reset at the same time when one of the 3 data functions is being reset.
3. ODO, clock and TT data cannot be reset.

Converts Bar-Graphic Thermometer and Fuel Gauge:

Press MODE button to digital thermometer screen, press RESET button to convert the current bar-graphic thermometer or fuel gauge to another function.

Shift Warning RPM Operation

1. Press MODE button to get to the RPM screen; pull on the throttle until the desired shift warning RPM is displayed.
2. Press the RESET button to confirm and set up the shift warning RPM.
3. Bar-graphic tachometer and warning LED will flash to warn you shift gear.
4. Press RESET button for 2 seconds at the RPM screen to re-adjust the shift warning RPM.

Thermometer Warning/Low Fuel Level Warning*

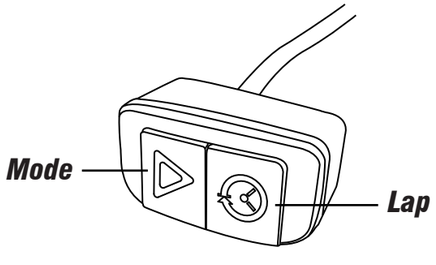
1. The LCD screen will jump to temperature screen automatically when the sensor detects temperature is higher than the preset warning temperature.
2. The thermometer digits and warning LED flash, the LCD screen will auto change to the temperature screen after 4 seconds of button operations at over temperature status..
3. Stop engine until temperature reduces to protect your engine.

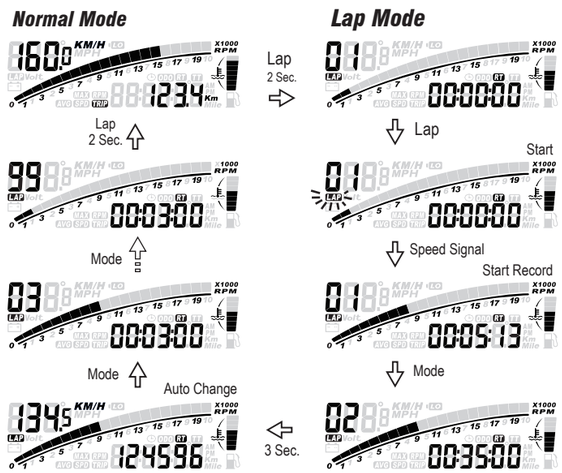
Backlight of Internal/Bike's Powers:

1. The computer has a built-in a CR2032 battery for off road kickstart bikes where no battery is fitted to the bike.
2. You can use both the internal battery and bike's battery at the same time.
3. The backlight is always turned on with the ignition if you connect to bike's battery; each press of either button turns on the backlight for 3 seconds then turn off automatically when using the internal battery only.

Remote Control Switch for LAP timer:

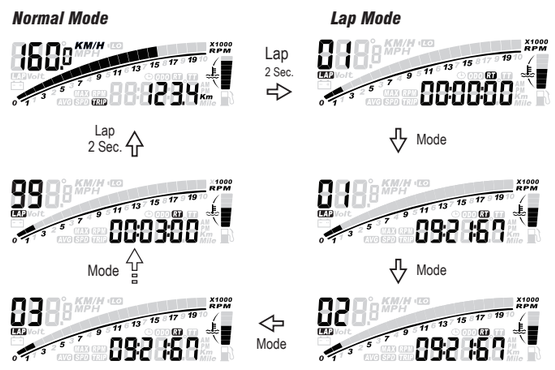
1. The remote control switch has 2 buttons, MODE and LAP buttons. The MODE button is the same function as it on the main unit.
2. Press and hold the LAP button for 2 seconds to go into the LAP mode.
3. LAP Record operations:
   A. In LAP mode, press LAP button to RESET recorded LAP data and start the LAP recording function, the " LAP " icon flashes when waiting at start line, the 1st lap timer will be counted automatically when the unit receives speed signal; each press of MODE button records a LAP timer and displays the former LAP timer for 3 seconds then changes to display the current lap and lap timer automatically.
   B. The 100th lap will replace the 1st lap when lap record reaches the maximum 99 laps, the 101st lap will replace the 2nd lap…etc.
   C. The unit will be suspended to detecting signal for 4 seconds after it received an IR signal in order to avoid mistake counting.
   D. Press LAP button to convert stop or start LAP record function.
   E. Press and hold the LAP button for 2 seconds to go out LAP mode and return to normal mode.





LAP review operations:

1. In the LAP mode, press MODE button to review the 1st storage data, it displays number of lap and lap timer.
2. Each press of the MODE button change a new set of Lap timer.
3. Press and hold LAP buttons for 2 seconds to go out LAP mode and return to normal mode.



WHEEL CIRCUMFERENCE TABLE

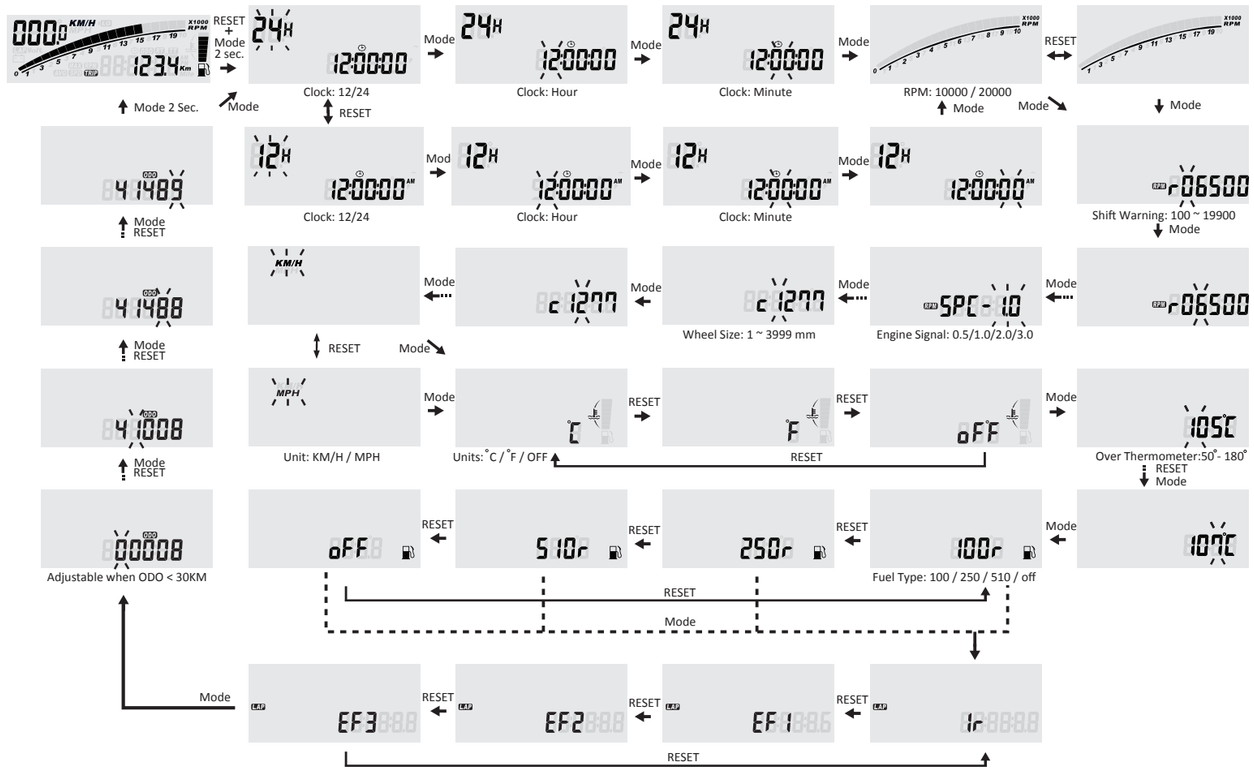
1. The details below have been calculated using following formula: Tire Diameter (inches) x 25.4(mm/inches) x 3.1416 = wheel circumference (in mm).
2. Identify the tire size of your ATV/Motorcycle when you need to change different tire size and key in the corresponding number shown in the following chart.

Tire Size	Circumference number (mm)	Tire Size	Circumference number (mm)	Tire Size	Circumference number (mm)
15 inch	1197	19 inch	1516	23 inch	1835
16 inch	1277	20 inch	1596	24 inch	1915
17 inch	1357	21 inch	1676	25 inch	1995
18 inch	1436	22 inch	1756	26 inch	2075

3. The computer calculates the wheel rotating length between 2 passes of the magnet; use this table to find the settings when you are using a reed sensor or an universal hall sensor with magnet to measure your speed.
4. If you are using a cable drive speed sensor then divide the number in the above table by the number of turns of the cable drive for each revolution of the wheel. For example if 1 wheel revolution equals 5 turns of speed cable then the wheel circumference has to be divided 5.
5. You can use more magnets, but the wheel circumference setting must be divided by the number of magnet you installed.

Clock, RPM, Wheel, Thermometer, fuel meter, sensor type of Lap Timer and Odometer SET UP

1. Setup operations include 12/24hour clock, bar rpm scale, shift warning RPM, numbers of engine rotation per signal, wheel circumference, units, units of temperature, temperature warning, fuel meter input resistance selection and odometer adjustment. These must be set up step by step. The computer will be automatic reversion to normal mode if no button operation for 75 seconds at any setting screen.
2. Press both MODE & RESET buttons to go into setting screen. In setting screens, each press RESET button to add the flashing digit by 1 or convert units, press MODE button to confirm the digit setting and jump to next digit or next setting screen to be set. Press MODE button for 2 seconds at any setting screen to finish the setting and go to normal mode.
3. It displays " 12 or 24H and XX:XX-XX " symbols as well AM/PM in case you select 12H. Operates buttons as descriptions of item 2 to finish clock setting and jump to 10,000/20,000rpm scale setting.
4. It displays 10,000rpm scale, press RESET button to convert 10,000 or 20,000rpm. Press MODE button to confirm the setting and jump to shift RPM warning setting.
5. It displays the default " RPM 6500 ", the digit " 6 " flash. Follow the item 2 of button operation to finish the shift RPM warning setting and jump to engine specification setting.
6. It displays " RPM SPC-X.X ", the default value is 1.0; there are 4 options: 1.0, 2.0, 3.0 and 0.5. It means the numbers of engine rotation per signal. For example the value 2.0 means the engine rotate 2 turns to output a signal. Follow the item 2 of button operation to finish the engine specification setting and jump to wheel circumference setting.
7. In " cXXXX " display, " c " means "Circumference", following 4 default digits; flashing digit is digit to be set. Follow the item 2 of button operation to finish the wheel circumference setting and jump to unit setting.
8. It displays KM/H or MPH, each press of RESET button converts unit; press MODE button to confirm unit setting and jump to thermometer unit setting.
9. It displays " °C, °F or oFF ", each press of RESET button converts °C, °F or Off, the temperature bars will disappear when you select oFF mode; press MODE button to confirm temperature setting and jump to temperature warning setting.
10. It displays " XXX " and the selected unit. Follow the item 2 of button operation to finish the temperature warning setting and go to fuel sensor resistance setting.
11. It displays " 100r " and fuel tank symbol, follow the item 2 to select 100, 250, 510ohm or oFF and jump to sensor type of LAP timer setting. The fuel meter bar will disappear if you select oFF mode.
12. It displays Ir, EF1, EF2 or EF3, Ir means you elect IR receiver as the sensor of LAP timer, and the selection of EF1, 2 or 3 is a magnetic field sensor for LAP timer, the number of 1, 2 or 3 is means the number of magnetic sensor in track, for example EF2 means the track has 2 magnetic sensor and it will combine 2 sensing signals in one. Follow the item 2 to set sensor type of LAP timer and jump to odometer setting.
13. It displays " ODO & 00000X km ", the " X " is tested odometer in factory, follow item 2 to setting a desired odometer and jump to clock setting or return to Normal Mode. This setting screen will disappear when the odometer is over 30km or your setting is over 30km


RESET + Mode 2 sec.
Clock: 12/24
Clock: Hour
Clock: Minute
RPM: 10000 / 20000
Shift Warning: 100 ~ 19900
Mode 2 Sec.
RESET
Wheel Size: 1 ~ 3999 mm
Engine Signal: 0.5/1.0/2.0/3.0
Unit: KM/H / MPH
Units: °C / °F / OFF
Over Thermometer:50° - 180°
Adjustable when ODO < 30KM
Fuel Type: 100 / 250 / 510 / off